0074652

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3100 Port of Benton Blvd • Richland, WA 99352 • (509) 372-7950

November 21, 2007

Ms. Shirley J. Olinger, Manager
Office of River Protection
United States Department of Energy
P.O. Box 450, MSIN: H6-60
Richland, Washington 99352

Re: Approval of Criteria and Toxic Air Emissions Notice of Construction Application, Waste Treatment and Immobilization Plant Construction Heaters and Dehumidifiers

References: 1. USDOE-RL Letter 07-ESQ-162, *Nonradioactive Air Emissions Notice of Construction Permit Application for WTP Heaters and Dehumidifiers,* dated September 14, 2007. 0073929
2. Ecology Letter, *Notice of Construction (NOC) Permit Application for Waste Treatment and Immobilization Plant (WTP) Heaters and Dehumidifiers, Determination of Complete Application and Draft Order*, dated September 28, 2007 0074013

Dear Ms. Olinger:

The United States Department of Energy-Office of River Protection petitioned for approval of a Notice of Construction for the proposed Waste Treatment and Immobilization Plant (WTP) heaters and dehumidifiers (Reference 1). Ecology determined that your application was complete (Reference 2). This letter issues approval for the petitioned operations.

Enclosed is ORDER No. **DE07NWP-004**, authorizing the proposed operations. The ORDER was issued based upon voluntary limitations of Washington Administrative Code 173-400-091. The enclosed ORDER may be appealed. Appeal procedures are described in the ORDER. Administrative revision of the Hanford Air Operating Permit, to incorporate provisions of this ORDER as requested in Reference 1, will follow this issuance.

This authorization can be modified, suspended, or revoked, in whole or in part, if Ecology finds that, due to inaccuracies in the petition request, compliance with ambient air quality standards is not ensured.

A public notice and comment period was held from October 8 through November 7, 2007, for the approval proposed by Ecology in Reference 2. Two persons commented during the comment period. The Responsiveness Summary prepared to address comments will soon be available upon the Ecology website at http://www.ecy.wa.gov/programs/nwp/currentnews.htm.

If you have questions, contact Doug Hendrickson at 509-372-7983.

Sincerely,

Ron Skinnarland
Waste Management Section Manager
Nuclear Waste Program

dh/pll
Enclosure

cc: Dennis Bowser, USDOE
Mary Jarvis, USDOE
Brad Erlandson, BNI
Robert Haggard, BNI
Stuart Harris, CTUIR
Gabriel Bohnee, NPT
Russell Jim, YN
Susan Leckband, HAB
Ken Niles, ODOE
John Martell, WDOH
Administrative Record: AIR Permits H-0-8, H-0-9
Environmental Portal

CRITERIA AND TOXIC AIR EMISSIONS
NOTICE OF CONSTRUCTION APPROVAL ORDER
CONDITIONS AND RESTRICTIONS

Approval Order DE07NWP-004
Hanford Tank Waste Treatment and Immobilization Plant
Heaters and Dehumidifiers
November 2007

REGULATORY AUTHORITY:

Pursuant to the Washington State Department of Ecology General Regulations for Air Pollution Sources, Chapter 173-400 Washington Administrative Code (WAC), and Controls for New Sources of Toxic Air Pollutants, Chapter 173-460 WAC, and WAC 173-400-091, specifically, Ecology now finds the following:

FINDINGS OF FACT:

1. On September 14, 2007, the United States Department of Energy (USDOE) submitted a Notice of Construction (NOC) Permit Application for Heaters and Dehumidifiers to support construction activities associated with the Hanford Tank Waste Treatment and Immobilization Plant (WTP).

2. The NOC permit application was found to be complete on September 28, 2007.

3. The WTP site is located in the 200 East Area of the Hanford Site north of Richland, Washington. The diesel and propane heaters and propane dehumidifiers will be placed throughout the WTP construction site.

4. USDOE was granted an NOC Approval Order for WTP construction on July 8, 2002, as DE02NWP-002. There were four subsequent amendments issued on August 23, 2004, November 10, 2005, May 11, 2006, and November 13, 2006; responding to three Permittee petitions and one public comment.

5. The scope of the heater and dehumidifier NOC application can be reviewed and approved, independently and separately, from DE02NWP-002.

6. The total heat inputs of the combustion units will exceed the exemption thresholds identified in WAC 173-400-110(4)(c)(iv) and (v).

7. Diesel heater capacities will range between 300,000 Btu/hr to 1,000,000 Btu/hr and propane heaters and dehumidifiers are approximately 450,000 Btu/hr and 1,000,000 Btu/hr, respectively. The heaters and dehumidifiers will be used to support construction activities for climate stabilization during concrete pours, special coating application, and for worker comfort.

8. Operation of the sources, particularly the heaters, in this NOC is expected to occur intermittently throughout the construction phase of the WTP project in the colder months. Current schedule shows that construction activities are expected to occur through the year 2018.

9. Air pollutant emission estimates were prepared based on: (i) 30 diesel heaters of maximum sizes of 1,000,000 Btu/hr with maximum fuel consumption rates of 216 gallons per hour and continuous operation for 180 days, and (ii) 30 propane heaters and 10 propane dehumidifiers of maximum sizes of 1,000,000 Btu/hr with maximum fuel consumption rates and continuous operation for 180 days.

10. Ambient air impact assessments of toxic air pollutant (TAP) emissions were prepared using the AERMOD air dispersion model approved by the United States Environmental Protection Agency (EPA). Modeled dispersion factors were 0.06695 $(\mu g/m^3)/(g/s)$ for Class A TAPs and 1.32409 $(\mu g/m^3)/(g/s)$ for Class B TAPs. The impact of all TAP emissions meets their respective acceptable source impact levels (ASILs).

11. Criteria pollutant emission estimates for all sources are below WAC 173-400-030(27) threshold values. Estimates show maximum nitrogen oxide emissions at approximately 16.2 tons per year, carbon monoxide emissions at 3.4 tons per year, particulate matter emissions at 0.4 tons per year, sulfur oxide emissions at 0.1 tons per year, and total organic compounds emissions of 1.4 tons per year.

12. The Best Available Control Technology (BACT) and Toxics-Best Available Control Technology (T-BACT) for this project have been determined, based upon the unit, to be:

    a. Diesel-fired heaters: (i) Combustion of clean fuel, and (ii) Implementation of good combustion practices.
    b. Propane-fired combustion units (heaters and dehumidifiers): Implementation of vendor-recommended combustion and maintenance practices.

13. Hanford is located in a Class II Area designated as "attainment" for the purpose of permitting all pollutants.

14. Hanford is an existing major stationary source that emits more than 250 tons of a regulated pollutant per year.

15. Emissions of criteria pollutants from the added equipment are below the Prevention of Significant Deterioration Significant Emission Rates.

16. The project will have no significant impact on air quality.

THEREFORE, IT IS ORDERED that the project as described in said Notice of Construction application, and as detailed in emissions estimates and impact and control technology assessments submitted to the Washington State Department of Ecology in reference thereto, is approved for construction, installation, and operation, provided compliance with the conditions and restrictions described below. This ORDER shall be identified as NOC ORDER **DE07NWP-004**.

1.0 GENERAL APPROVAL CONDITIONS

1.1 Effective Date

The effective date of this authorization shall be that as signed in Section 4.0. All references to procedures or test methods shall be to those in effect as of the effective date of this ORDER.

1.2 Emission Limits

1.2.1 Total Suspended Particulates emission shall not exceed 1.25 tons per year [WAC 173-400-110(5)(d)].

1.2.2 PM-10 particulate emission shall not exceed 0.75 tons per year [WAC 173-400-110(5)(d)].

1.2.3 Sulfur Oxides (SO_x) emission shall not exceed 2.0 tons per year [WAC 173-400-110(5)(d)].

1.2.4 Nitrogen Oxides (NO_x) emission shall not exceed 16.2 tons per year [WAC 173-400-110(2)(a)].

1.2.5 Total Volatile Organic Compounds emission shall not exceed 2.0 tons per year [WAC 173-400-110(5)(d)].

1.2.6 Carbon Monoxide emissions shall not exceed 5.0 tons per year [WAC 173-400-110(5)(d)].

1.2.7 Toxic Air Pollutant (TAP) emissions as specified in Table 1 [WAC 173-460-070].

1.3 Compliance Demonstration

1.3.1 Compliance with Approval Condition 1.2.1 shall be demonstrated by:

1.3.1.1 Emission of visible emissions of no more than five percent opacity during normal operation of diesel-fired heaters.

1.3.1.2 Diesel-fired heaters exceeding five percent opacity shall be removed from operation until maintenance of the unit results in visible emissions in compliance with Approval Condition 1.3.1.1.

1.3.1.3 Compliance with visible emissions survey requirements of Approval Condition 3.0.

1.3.2 Compliance with Approval Condition 1.2.2 shall be demonstrated by compliance with Approval Condition 1.3.1.

1.3.3 Compliance with Approval Condition 1.2.3 shall be met by:

1.3.3.1 Combustion of distillate fuel oil No. 2 with a sulfur content no greater than 0.0015 wt percent (15 ppm) for diesel heaters.

1.3.3.2 Combustion of no greater than 933,100 gallons of distillate fuel oil per year, based upon a daily rolling summation.

1.3.4 Compliance with Approval Condition 1.2.4 shall be demonstrated by:

1.3.4.1 Operations in compliance with BACT/T-BACT: Implementation of vendor-recommended combustion and maintenance practices.

1.3.4.2 Fuel Limitation

1.3.4.2.1 Combustion of no greater than 933,100 gallons of distillate fuel oil per year, based upon a daily rolling summation.

1.3.4.2.2 Combustion of no greater than 1,109,500 gallons of propane per year, based upon a daily rolling summation.

1.3.5 Compliance with Approval Conditions 1.2.5, 1.2.6, and 1.2.7 shall each be demonstrated by compliance with Approval Condition 1.3.4.

1.4 Manuals

Operations and Maintenance (O&M) manuals for all equipment, procedures, and controls associated with the proposed activities that have the potential to affect emissions to the atmosphere shall be available or developed and followed. Manufacturer's instructions may be referenced. The O&M manuals shall be updated to reflect any modifications of the process or operating procedures. Copies of the O&M manuals shall be available to Ecology upon request.

2.0 NOTIFICATIONS AND SUBMITTALS

2.1 Addressing

Any required notifications and submittals required under these Approval Conditions shall be sent, electronically or in writing, to:

Program Manager
Washington State Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354

2.2 Recordkeeping

Specific records shall be kept on the Hanford Site by the Permittee and made available for inspection by Ecology upon request. The records shall be organized in a readily accessible manner and cover a minimum of the most recent 60-month period. The records to be kept shall include the following:

1. Visual Emission surveys and tests conducted pursuant to Approval Conditions 1.3.1 and 1.3.2.
2. Maintenance records for any diesel-fired heater removed from service in accord with Approval Condition 1.3.1.2.
3. Fuel analysis data and consumption rates. Consumption rate data shall, at a minimum, consider day-tank allocation of fuel dedicated to operations within the scope of this approval.
4. Supporting data and calculations.

2.3 Reporting

Deviation from visible emission requirements of Approval Conditions 1.3.1 or fuel consumption limitations of Approval Condition 1.3.4.2 shall be reported to Ecology in accordance with WAC 173-400-107, with an assessment of the cause of deviation and a report of the actions taken to prevent further deviation.

3.0 EMISSION MONITORING

Visible emissions (VE) from diesel-fired heaters in normal operation (not start-up or shut-down) will be monitored through a VE survey described herein. A minimum representation of 20 percent of active diesel-fired heaters under this ORDER shall be subject to VE survey. If VEs from one of these emission units are observed for more than 10 consecutive minutes, an attempt to identify the cause(s) of the VEs

will be made and those results recorded. The recorded entry also will identify any corrective actions taken and the likely frequency of a future reoccurrence. If the event is likely to be re-occurring, and can not be demonstrated to consist of water vapor, a determination of opacity will be made using EPA Method 9.

A VE survey shall be conducted weekly for a period of three months. If weekly VE surveys do not demonstrate emissions in excess of Approval Condition 1.3.1, the VE survey frequency will reduce to once every three months for a period of six months. After nine months of no excess visible emissions, visible emission surveys will be performed for any diesel-fired heater subject to this ORDER only when visible emissions are observed during normal operation.

4.0 APPROVAL ORDER AND RESTRICTIONS

The use of diesel- and propane-fired equipment is intended to support WTP construction activities and worker comfort as described in the NOC application.

This Approval ORDER may be modified, suspended, or revoked, in whole or in part, for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this authorization.
2. Obtaining this authorization by misrepresentation, or failure to fully disclose all relevant facts.

The provisions of this ORDER are severable. If any provision of this ORDER, or application of any provisions of this authorization to any circumstance, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

Any person aggrieved by this ORDER may obtain review thereof by application, within 30 days of receipt of this order to:

Pollution Control Hearings Board
P.O. Box 40903
Olympia, Washington 98504-0903

Concurrently, copies of the application must be sent to:

Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

These procedures are consistent with the provisions of Chapter 43.21B of the Revised Code of Washington, and the rules and regulations adopted thereunder.

DATED at Richland, Washington, this 21st day of November 2007.

REVIEWED AND PREPARED BY:

Doug Hendrickson, P.E.
Nuclear Waste Program

APPROVED BY:

Ron Skinnarland
Waste Management Section Manager
Nuclear Waste Program
Washington State Department of Ecology

Table 1: WTP Construction Heater Toxic Air Pollutants					
Toxic Air Pollutants [1]	**TAP Class [2]**	**CAS# [3]**	**Emissions Estimate (lb/yr)**	**ASIL [4] ($\mu g/m^3$)**	**SQER [5] (lb/period)**
Arsenic and inorganic arsenic compounds	A	C7440-38-2	5.23E-01	0.00023	
Beryllium and compounds	A	7440-41-7	3.92E-01	0.00042	
Cadmium and compounds	A	7440-43-9	3.92E-01	0.00056	
Chromium, hexavalent metal and compounds	A	C7440-47-3	3.92E-01	0.000083	
Copper, Dusts and mists, as Cu	B	C7440-50-8	7.84E-01	3.3	0.02
Lead compounds	A	—	1.18E+00	0.5	0.02
Mercury, Aryl & inorganic cmpd	B	C7439-97-6	3.92E-01	0.33	0.02
Manganese dust & compounds	B	C7439-96-5	7.84E-01	0.4	0.02
Nickel and compounds (as nickel subsulfide or nickel refinery dust)	A	C7440-02-0	3.92E-01	0.0021	0.5
Selenium compounds, as Se	B	C7782-49-2	1.96E+00	0.67	0.02
Zinc oxide, fume	B	1314-13-2	6.50E-01	17	0.2
Benzene	A	71-43-2	2.00E-01	0.12	20
Ethylbenzene	B	100-41-4	5.93E-02	1000	5
Formaldehyde	A	50-00-0	3.08E+01	0.077	20
Naphthalene	B	91-20-3	1.05E+00	170	2.6
1,1,1-Trichloroethane	B	71-55-6	2.20E-01	6400	5
Toluene	B	108-88-3	5.79E+00	400	5
o-Xylene	B	1330-20-7	1.02E-01	1500	5
Polyaromatic hydrocarbons (PAH) including[6]:	A	-	5.65E-02	0.00048	
Acenaphthene		83-32-9	1.97E-02		
Acenaphthylene		208-96-8	2.36E-04		
Anthracene		120-12-7	1.14E-03		
Benz(a)anthracene	A	56-55-3	3.74E-03		
Benzo(b)fluoranthene	A	205-99-2	6.91E-04		
Benzo(k)fluoranthene	A	207-08-9	6.91E-04		
Benzo(g,h,i)perylene		191-24-2	2.11E-03		
Chrysene		218-01-9	2.22E-03		
Dibenzo(a,h)anthracene	A	53-70-3	1.56E-03		
Fluoranthene		206-44-0	4.52E-03		
Fluorene		86-73-7	4.17E-03		
Indeno(1,2,3-cd)pyrene	A	193-39-5	2.00E-03		
Phenanthrene		85-01-8	9.80E-03		
Pyrene		129-00-0	3.97E-03		
Octachlorinated dibenzo-p-dioxin (OCDD)	A	-	2.89E-06		

Notes:

1: Toxic Air Pollutant as identified in WAC 173-460-150 and WAC 173-460-160.

2: TAP Class = A for carcinogenic pollutants; B for toxic pollutants.

3: CAS # = Chemical Abstracts Service Registry number.

4: Acceptable Source Impact Level, ambient concentration. Periods of exposure assessment are Annual for "A" TAPs and 24 hours for "B" TAPs with the exception of Lead (24 hour).

5: Small Quantity Emission Rate periods are Annual for "A" TAPs and per hour for "B" TAPs with the exception of Lead (per hour).

6. PAH emissions are summed of the following species identified in AP 42 Table 1.3-9. **AP 42,** Fifth Edition, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources,* http://www.epa.gov/ttn/chief/ap42/index.html